JC555 U.S. PTO
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UTILITY
PATENT APPLICATION
TRANSMITTAL
(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.: P98-2369

First Named Inventor: Meyer *et. al*

Title: Automatic Capture and Comparison of Computer Configuration Data

Express Mail Label No. EL404724558US

APPLICATION ELEMENTS

See MPEP Chapter 600 concerning utility patent application contents

ADDRESS TO: Assistant Commissioner for Patents
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Washington, DC 20231

1. ✓ Fee Transmittal Form *(e.g., PTO/SB/17)*
(Submit an original, and a duplicate for fee processing)

2. ✓ Specification Total pages 35

(preferred arrangement set forth below)
- Descriptive title of the Invention
- Cross References to Related Applications
- Statement Regarding Fed sponsored R&D
- Reference to Microfiche Appendix
- Background of the Invention
- Brief Summary of the Invention
- Brief Description of the Drawings *(if filed)*
- Detailed Description
- Claim(s)
- Abstract of the Disclosure

3. ✓ Drawing(s) (35USC d113) Total pages 3

4. Oath of Declaration Unsigned Total pages 2

a. ____ Newly Executed (original or copy)

b. ____ Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional with Box 17 completed)

i. ____ Deletion of inventor(s) (Signed statement attached deleting inventor(s) named in the prior application, see 37, C.F.R 1.63(d)(2) and 1.33(b).

5. ____ Incorporation by Reference (useable if Box 4b is checked)
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered to be part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

6. ____ Microfiche Computer Program *(Appendix)*

7. ____ Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
a. ____ Computer Readable Copy
b. ____ Paper Copy (identical to computer copy)
c. ____ Statement verifying identity of above copies

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8. ____ Assignment Papers (cover sheet & Documents(s))
9. ____ 37 CFR §3.73(b) Statement *(when there is an assignee)*
____ Power of Attorney
10. ____ English Translation Document *(if applicable)*
11. ____ Information Disclosure Statement (IDS)/PTO-1449
____ Copies of IDS Citations
12. ____ Preliminary Amendment
13. ✓ Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
14. ____ *Small Entity Statement(s) *(PTO/SB/09-12)*
____ Statement filed in prior application -Status still proper and desired
15. ____ Certified Copy of Priority Document(s) .
16. ____ Other:

* A new statement is required to be entitled to pay small entity fees, except where one has been filed in a prior application and is being relied upon.

17. If a CONTINUING APPLICATION, *check appropriate box and supply the requisite information below and in a preliminary amendment:*

____Continuation ____Divisional ____Continuation-in-part (CIP) of prior application No: .

Prior application information: **Examiner:** **Group / Art Unit:**

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October 28, 1999, via Express Mail

Commissioner of Patents
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Washington DC 20231

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10/28/99 Orolene Jorgenson
Date of Mailing Signature

Re: Patent Application of **Compaq Computer Corporation** filed herewith:
Inventorship: **Meyer *et. al*** (John E. Meyer, John S. Harsany, Tim J. Lyons, David E. Gorman, Hung K. Dinh)
Title: **Automatic Capture and Comparison of Computer Configuration Data** (Docket No. **P98-2369**)

Honorable Commissioner:

Enclosed are PTO forms PTO/SB/05 and PTO/SB/17, with application elements and accompanying application parts as listed therein.

Respectfully submitted,

Betty Formby

Betty Formby, Registration No. 36,536

Automatic Capture and Comparison of Computer Configuration Data

U.S. Patent Application of:

John E. Meyer, Inventor
John S. Harsany, Inventor
Tim J. Lyons, Inventor
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Hung K. Dinh, Inventor

Compaq Computer Corporation, Assignee

Attorney's Docket No. P98-2369
Groover & Associates, P.C.

0450505 .4000303

Automatic Capture and Comparison of Computer Configuration Data

The present application relates to diagnosis and service of computer faults.

Background and Summary of the Invention

In recent decades, computers have become integral tools for information processing. Businesses and individuals rely on commercially available PCs for many purposes. To be competitive, companies provide extensive customer support for the machines they sell and expend considerable resources on diagnosis and repair of computers.

A large number of service calls deal with problems created by recent changes in software and hardware configurations on the computer. Identifying recent configuration changes helps diagnose computer faults. Many different problems can arise during the use of computer software and hardware, so customer service needs detailed information about the specific hardware and operating system configurations from the computer to resolve problems.

Service personnel can gather the information they need by going to the actual site of the computer. This is expensive and usually not cost effective. More often, service personnel gather the information they need directly from the customer over the telephone. This solution is not ideal, because problems with the operation of computers may often be complex, and users do not always know what information service personnel need to resolve the service call.

This problem can be partially addressed by installing a diagnostics program on the customer's computer (e.g., Compaq Diagnostics for Windows) that locally collects hardware and operating system

information from the computer. The customer verbally provides this information to customer service during a service call.

Automatic Capture and Comparison of Computer Configuration Data

The information yielded by diagnostics programs does not identify recent configuration changes in the hardware and software. Since recent configuration changes are often the source of a computer problem, there is need for a way to generate comprehensive configuration snapshots which identify configuration changes for service personnel to use during a service call.

The present application teaches, among many things, an improved method of servicing and diagnosing computers. Computer service tools require on-line functionality to identify and resolve problems without taking the computer off-line, and a simple collection process for gathering the computer information required to effectively resolve service cases. This invention provides a simplified process of capturing comprehensive information about the computer hardware and operating system and compares previous configurations with current configurations to help identify recent changes.

A diagnostics program captures hardware and operating system configurations when the program is installed on the computer. Later, when a computer owner calls customer service with a problem, the computer owner runs the diagnostic program, which captures the current hardware and operating system configurations. The program performs this capture without the need to restart the computer or take it off-line. The original configuration settings (captured when the program was installed) serve as a baseline for comparison to the current configuration. The program output highlights any significant

changes that have occurred in the configurations and automatically updates the output file to reflect the latest configuration and differences relative to the baseline. Once this information is gathered, customer service uses it to assist in servicing the customer's computer.

By automatically performing on-line hardware and operating system information capture and displaying differences between base line and current configurations, the invention provides many advantages. It allows faster problem resolution time, since essential data is gathered and output in a format that highlights the most likely problem spots. This reduces administration costs and resource expenditure in customer service and diagnostics, while maintaining or improving quality of service to the customer. Computer downtime for the customer is also reduced since service calls are resolved more quickly.

Brief Description of the Drawings

The disclosed inventions will be described with reference to the accompanying drawings, which show important sample embodiments of the invention and which are incorporated in the specification hereof by reference, wherein:

Figure 1 shows a flowchart of the diagnostic process using the present innovations.

Figure 2 shows a sample display window that the customer will see when the diagnostic is run.

Figure 3 shows a computer according to the presently preferred embodiment.

Detailed Description of the Preferred Embodiments

The numerous innovative teachings of the present application will be described with particular reference to the presently preferred embodiment. However, it should be understood that this class of embodiments provides only a few examples of the many advantageous uses of the innovative teachings herein. In general, statements made in the specification of the present application do not necessarily delimit any of the various claimed inventions. Moreover, some statements may apply to some inventive features but not to others.

Figure 1 shows a flow chart of the innovative process. First the program is installed and run (cpqdiag.exe) in a silent mode during installation to gather the base line computer hardware and operating system information in an ASCII text file called base.log. This file is stored in the \Windows\Cpqdiag\ directory (step **102**). Later, the customer has a computer problem that requires customer service assistance (step **104**). The customer then runs Compaq Diagnostics System Record tool (cpqdiaga.exe) (step **106**). The Compaq Diagnostics System Record tool automatically runs Compaq Diagnostics for Windows in silent mode to gather the current computer hardware and operating system information in an ASCII text file called now.log (step **108**). In the preferred embodiment, this data gathering is done without the need to restart the computer or take the computer off-line, because operating system level diagnostics are used. The invention could be implemented with embedded diagnostics as well.

The Compaq Diagnostics System Record tool compares the hardware and operating system configuration files (base.log and now.log) previously created by Compaq Diagnostics for Windows. The differences produced by the comparison are highlighted (step **110**).

The output is displayed on the customer's screen in a bifurcated

window showing base line configurations on one side, the current configurations on the other. **Figure 2** shows a sample display window, with the base.log data on the left and now.log data on the right. The "free physical memory" configuration settings, **202** and **204**, differ and are therefore highlighted in the output.

Figure 3 shows a block diagram of a computer system 300 according to the presently preferred embodiment. In this example, the computer system, includes:

user input devices (*e.g.* keyboard **335** and mouse **340**);

at least one microprocessor 325 which is operatively connected to receive inputs from said input device, through an interface manager chip **330** (which also provides an interface to the various ports);

a power supply 305 which is connected to draw power from AC mains and provide DC voltage to the computer system 300 components; the innovative power supply control circuit 310, located within the power supply 305, connects to fan 100 and also interfaces to the microprocessor 325;

a memory (*e.g.* flash or non-volatile memory **355** and RAM **360**), which is accessible by the microprocessor;

a data output device (*e.g.* display **350** and video display adapter card **345**) which is connected to output data generated by microprocessor; and

a magnetic disk drive **370** which is read-write accessible, through an interface unit **365**, by the microprocessor.

Optionally, of course, many other components can be included, and this configuration is not definitive by any means. For example, the computer may also include a CD-ROM drive **380** and floppy disk drive ("FDD") **375** which may interface to the disk interface controller 365.

Additionally, L2 cache **385** may be added to speed data access from the disk drives to the microprocessor, and a PCMCIA **390** slot accommodates peripheral enhancements.

Comprehensive data is gathered in the ASCII text files (base.log and now.log) in steps 102 and 108 relating to the hardware and operating system configurations. The attached output offers a sample file format for the base.log and now.log output files. The information gathered in these files relates to the system itself, asset control, input devices, communication, storage, video, memory, multimedia, the operating system, architecture, computer health, and various miscellaneous data.

The system data displayed includes the date and time, the name of the computer product, a machine ID, processor statistics, and system ROM information.

Asset control output includes the product name, which processor is used, and an asset tag.

Input devices output includes information on the keyboard and the mouse.

Communication output displays data for the various ports.

Storage data includes logical drive information and physical drive information.

Video output includes the current graphics resolution, the primary monitor attached, video display driver, and the video controller ROM.

Memory output includes the system board, total memory, and windows memory information.

Multimedia output includes data about the CDROM, the mixer device driver capabilities, the waveform output device driver capabilities, waveform input device driver capabilities, MIDI input and output

device driver capabilities, and auxiliary audio device driver capabilities.

Windows output includes which version of Windows is in use,the locations of directories, and Windows memory information.

Architecture output includes PCI device information, and whether the system has PCMCIA capabilities.

Health output includes the temperature, and whether the ROM has embedded diagnostics.

Some of the miscellaneous output information deals with when the system was last modified, BIOS data, system configuration memory, interrupt vector table, a power conversion record, system standby timeout record, screen saver record, hard drive timeout record, security features record, processor/memory/cache record, general system peripheral and input device information record, memory module information record, timeout default value record, extended disk support record, and a product name header record.

Sample Now.log/Base.log file format

```
Compaq Diagnostics for Windows 2.11

System
```

```
_______
Date . . . . . . . . . . . . . . . . . . 9/8/98
Time . . . . . . . . . . . . . . . . . . 10:07:40AM

Product  . . . . . . . . . . . . . . . . Armada 7792DM

Machine ID
  From System Board  . . . . . . . . . . 2BC

Processor  . . . . . . . . . . . . . . . Pentium(R) w/ MMX at 266 MHz
CPU ID . . . . . . . . . . . . . . . . . 0581
Numeric Coprocessor  . . . . . . . . . . Integrated 387-Compatible
Secondary Cache  . . . . . . . . . . . . Installed
  Size . . . . . . . . . . . . . . . . . 512 Kbytes
  Write policy . . . . . . . . . . . . . Write back
```

```
  Optional . . . . . Optional/Permanent
Asset tag . . . . . 7804BS521071
Current System Speed . . . . . High

System ROM
  Revision . . . . . 3/20/98
  Family . . . . . 586S
  Flashable . . . . . Yes
    Socketed . . . . . No

Video Controller ROM
  Revision . . . . . 12/15/97
Does ROM support F10 partition . . . . Yes
Backup copy of CMOS supported . . . . No
Does ROM have embedded diagnostics . . No

Armada 7792DM is a trademark of Compaq Computer Corporation.

AssetControl
```

```
Product . . . . . Armada 7792DM

Processor . . . . . Pentium(R) w/ MMX at 266 MHz
Asset tag . . . . . 7804BS521071
System board revision level
  Assembly Version . . . . . 1
  Functional Revision Level . A

Input Devices
```

```
Keyboard
  Type . . . . . (101- or 102-key)IBM enhanced/compatible
  Number of function keys . . 12
  Speed . . . . . 15 ms
  Delay . . . . . 0 ms

Mouse
  Type . . . . . Standard PS/2 Port Mouse
  Speed . . . . . 1
  Double click time . . . . . 500 ms
  Buttons swapped . . . . . No

Communication
```

```
LPT Ports . . . . . LPT 1 (Address 0x0378)

COM Ports . . . . . COM 1 (Address 0x03F8)
                    COM 2 (Address 0x02F8)
```

COM 3 (Address 0x03E8)

Modem	Compaq SpeedPaq 33.6 Fax
Baud	33600
Port	COM2
Variant	United States
Firmware	1.22

Storage

Logical Drive Information

C: Hard Drive	1.996 GB (59 MB Free)
D: Hard Drive	1.996 GB (228 MB Free)
E: Hard Drive	760 (240 MB Free)

F: CD-ROM Drive
H: Remote/Network Drive
I: Remote/Network Drive
K: Remote/Network Drive
L: Remote/Network Drive
N: Remote/Network Drive
Q: Remote/Network Drive
S: Remote/Network Drive (Drive_E)
U: Remote/Network Drive

Physical Drive Information

IBM-DPLA-25120 Hard Drive

Capacity	5124 MB
Serial Number	D34D31L5589
Firmware Revision	PL8OAB1A
Interface	IDE
Controller	Primary
Position	Master

Compaq Fibre Channel Tape Controller

Firmware Revision	ÿ
Devices Attached	0

COMPAQ CRD-S311 CDROM

Firmware Revision	1.05
Adapter	0
Target	1
Lun	0

Video

```
Current graphics resolution  .   1024 x 768
Primary Monitor attached to  .   S3 Aurora64V+ Graphics Controller
Video device driver(s)
  DISPLAY.DRV=pnpdrvr.drv
  386GRABBER=vgafull.3gr
    Date and Time . . . . . .   8/24/96, 11:11:10AM
    Size . . . . . .           14624 Bytes
    Company Name . . . . . .    Microsoft Corporation
    Product Name (Driver)  . .  Microsoft® Windows® Operating System
    Product Version  . . . . .  4.00.950
    File Description . . . . .  Combined VGA/DIB 386 enhanced mode display
component
    File Version . . . . . .    4.00.950
    Internal Name  . . . . . .  GRABBER
    Original Filename  . . . .  VGAFULL.3GR
    Design operating system  .  DOS-Win16


Display Panel Type . . . . . .  4
Video Controller ROM
  Revision . . . . . .          12/15/97

Memory
------------------------------------------------------------------------

System Board . . . . . .        16 Megabytes
  DIMM Slot  1 . . . . . .       0 Megabytes
  DIMM Slot  2 . . . . . .      16 Megabytes
Total Compaq Memory  . . . . .  32 Megabytes


Windows Memory Information
  Total Physical Memory  . . .  33054 Kbytes
  Free Physical Memory . . . .  0 Kbytes
  Total Virtual Memory . . . .  2143289 Kbytes
  Free Virtual Memory  . . . .  2053373 Kbytes

Multimedia
------------------------------------------------------------------------

  COMPAQ CRD-S311 CDROM
    Firmware Revision  . . . . . .  1.05
    Adapter  . . . . . .            0
    Target . . . . . .              1
    Lun  . . . . . .                0

Mixer device driver(s) capabilities (see Compaq for technical support)
  Product Name (Driver)  . . . .  ESS AudioDrive Mixer (220)
  Company Name . . . . . .        ESS Technology
  Product Identifier . . . . . .  39
  Driver Version . . . . . .      4.4
  Destination Lines  . . . . . .  3
```

```
Waveform Output device driver(s) capabilities (see Compaq for technical
support)
  Product Name (Driver)  . . . . .  ESS AudioDrive Playback (220)
  Company Name . . . . . .  ESS Technology
  Product Identifier . . . . . .  37
  Driver Version . . . . . .  4.4
  Pitch Control  . . . . . .  Not Supported
  Playback Rate Control  . . . . .  Not Supported
  Volume Control . . . . . .  Separate left and right control
  Output Format  . . . . . .  Stereo
  Formats Supported  . . . . . .  11.025 kHz, 8-bit,  Mono
                                  11.025 kHz, 8-bit,  Stereo
                                  11.025 kHz, 16-bit, Mono
                                  11.025 kHz, 16-bit, Stereo
                                  22.050 kHz, 8-bit,  Mono
                                  22.050 kHz, 8-bit,  Stereo
                                  22.050 kHz, 16-bit, Mono
                                  22.050 kHz, 16-bit, Stereo
                                  44.100 kHz, 8-bit,  Mono
                                  44.100 kHz, 8-bit,  Stereo
                                  44.100 kHz, 16-bit, Mono
                                  44.100 kHz, 16-bit, Stereo

Waveform Output device driver(s) capabilities (see Compaq for technical
support)
  Product Name (Driver)  . . . . .  Compaq Portable Wave #00 Line
  Company Name . . . . . .  Compaq Computer Corporation
  Product Identifier . . . . . .  11
  Driver Version . . . . . .  0.1
  Output Format  . . . . . .  Monaural

Waveform Input device driver(s) capabilities (see Compaq for technical
support)
  Product Name (Driver)  . . . . .  ESS AudioDrive Record (220)
  Company Name . . . . . .  ESS Technology
  Product Identifier . . . . . .  38
  Driver Version . . . . . .  4.4
  Input Format . . . . . .  Stereo
  Formats Supported  . . . . . .  11.025 kHz, 8-bit,  Mono
                                  11.025 kHz, 8-bit,  Stereo
                                  11.025 kHz, 16-bit, Mono
                                  11.025 kHz, 16-bit, Stereo
                                  22.050 kHz, 8-bit,  Mono
                                  22.050 kHz, 8-bit,  Stereo
                                  22.050 kHz, 16-bit, Mono
                                  22.050 kHz, 16-bit, Stereo
                                  44.100 kHz, 8-bit,  Mono
                                  44.100 kHz, 8-bit,  Stereo
                                  44.100 kHz, 16-bit, Mono
                                  44.100 kHz, 16-bit, Stereo

Waveform Input device driver(s) capabilities (see Compaq for technical
```

```
support)
  Product Name (Driver)  . . . . .  Compaq Portable Wave #00 Line
  Company Name . . . . . .  Compaq Computer Corporation
  Product Identifier . . . . . .  10
  Driver Version . . . . . .  0.1
  Input Format . . . . . .  Monaural

MIDI Output device driver(s) capabilities (see Compaq for technical support)
  Product Name (Driver)  . . . . .  ESFM Synthesis (220)
  Company Name . . . . . .  ESS Technology
  Audio Source . . . . . .  FM Synthesizer
  Product Identifier . . . . . .  4
  Driver Version . . . . . .  4.4
  Volume Control . . . . . .  Supported
  Voices supported . . . . . .  18
  Simultaneous notes supported . .  18

MIDI Output device driver(s) capabilities (see Compaq for technical support)
  Product Name (Driver)  . . . . .  ESS MPU-401
  Company Name . . . . . .  ESS Technology
  Audio Source . . . . . .  MIDI Hardware Port
  Product Identifier . . . . . .  9
  Driver Version . . . . . .  4.4
  Volume Control . . . . . .  Supported

MIDI Input device driver(s) capabilities (see Compaq for technical support)
  Product Name (Driver)  . . . . .  ESS MPU-401
  Company Name . . . . . .  ESS Technology
  Product Identifier . . . . . .  10
  Driver Version . . . . . .  4.4

Auxiliary Audio device driver(s) capabilities (see Compaq for technical
support)
  Product Name (Driver)  . . . . .  ESS AudioDrive Line-In (220)
  Company Name . . . . . .  ESS Technology
  Audio Source . . . . . .  Auxiliary Input Jacks
  Product Identifier . . . . . .  3
  Driver Version . . . . . .  4.4
  Volume Control . . . . . .  Separate left and right control

  Product Name (Driver)  . . . . .  ESS AudioDrive CD-Audio (220)
  Company Name . . . . . .  ESS Technology
  Product Identifier . . . . . .  8
  Driver Version . . . . . .  4.4
  Volume Control . . . . . .  Separate left and right control


Windows
```

```
Windows Version  . . . . . .  95
Revision . . . . . .  4.0
```

```
Build . . . . . .   67109975
Windows directory . . . . . .   C:\WINDOWS
Windows system directory . . .   C:\WINDOWS\SYSTEM

Windows Memory Information
  Total Physical Memory . . .   33054 Kbytes
  Free Physical Memory . . . .   0 Kbytes
  Total Virtual Memory . . . .   2143289 Kbytes
  Free Virtual Memory . . . .   2053373 Kbytes

Architecture
```

```
PCI Devices Information
  Signature . . . . . . . . . . . . . . . . PCI
  Config Mechanism #1 . . . . . . . . . . . Supported
  Config Mechanism #2 . . . . . . . . . . . Not Supported
  Spec Cycle for Config #1 . . . . . . . . Supported
  Spec Cycle for Config #2 . . . . . . . . Not Supported
  BIOS Interface Version . . . . . . . . . 2.10
  Last PCI Bus Number . . . . . . . . . . . 0
  Number of PCI Devices . . . . . . . . . . 2

  Bus Number . . . . . . . . . . . . . . . . 0
  Device Number . . . . . . . . . . . . . . 13
  Function Number . . . . . . . . . . . . . 0
  Slot Number . . . . . . . . . . . . . . . 0
  Vendor ID . . . . . . . . . . . . . . . . 5333h
  Device ID . . . . . . . . . . . . . . . . 8812h
  Revision ID . . . . . . . . . . . . . . . 43h
  Device Type . . . . . . . . . . . . . . . VGA Compatible Controller
  Programming Interface . . . . . . . . . . 0
  Expansion ROM Base Address . . . . . . . FFFF0000h
  IRQ Line . . . . . . . . . . . . . . . . 11
  IRQ Pin . . . . . . . . . . . . . . . . . INTA#
  Memory Address Base . . . . . . . . . . . 40000000h
  Memory Address Length . . . . . . . . . . 4000000h

  Bus Number . . . . . . . . . . . . . . . . 0
  Device Number . . . . . . . . . . . . . . 14
  Function Number . . . . . . . . . . . . . 1
  Slot Number . . . . . . . . . . . . . . . 0
  Vendor ID . . . . . . . . . . . . . . . . E11h
  Device ID . . . . . . . . . . . . . . . . AE33h
  Revision ID . . . . . . . . . . . . . . . 3h
  Device Type . . . . . . . . . . . . . . . IDE Controller
  Programming Interface . . . . . . . . . . 234
  Expansion ROM Base Address . . . . . . . 0h
  IRQ Line . . . . . . . . . . . . . . . . 14
  IRQ Pin . . . . . . . . . . . . . . . . . INTA#
  IO Address Base . . . . . . . . . . . . . 0h
```

```
  IO Address Length  . . . . . .  8h
  IO Address Base  . . . . . .  0h
  IO Address Length  . . . . . .  4h
  IO Address Base  . . . . . .  0h
  IO Address Length  . . . . . .  4h

Does system have PCMCIA capabilities . .  Yes

Health
------------------------------------------------------------------------

Temperature  . . . . . .  Normal
Does ROM have embedded diagnostics . .  No

Miscellaneous
------------------------------------------------------------------------

***** Dump of C:\SYSTEM.SAV\INFO.BOM (4242 Bytes) *****
***** Last modified on: 1/31/97, 0:00:00AM *****
SKU Number:      315650-001

[Info]
SkuNumber=315650-001 Rev 100
BomID=50000 Rev 1

[Zips]
File1=138782-00A Rev 2, 12 MB System - 2.0 Gb Primary - 2.0 Gb Secondary -
0 Mb
File2=138701-00A Rev 33, QTR Star Startup [XXXXX XX] Ver 1.00 Rev 1 Ext 1 Int
2
File3=138703-00A Rev 31, Windows 95 OSR2 [WIN40 US] Ver 4.00 Rev 2 Ext 1 Int
1
File4=138740-00A Rev 43, Star T Config [WIN40 US] Ver 1.00 Rev 1 Ext 3 Int
1
File5=138757-00A Rev 31, Dynamic Floppy QFE [WIN40 US] Ver 4.00.1112 Rev 1
Ext 2 Int 1
File6=138747-00A Rev 32, Universal Serial Bus SR2 [WIN40 US] Ver 1.00 Rev 1
Ext 1 Int 2
File7=138745-00A Rev 32, MS DirectX Drivers [WIN40 US] Ver 3.0A Rev 2 Ext 1
Int 2
File8=138758-00A Rev 42, Windows 95 CONFIG [WIN40 XX] Ver 2.00 Rev 1 Ext 2
Int 7
File9=\US\WIN40\PWR95_B1.EXE, 138751-00A Rev 32, Power Management Win95
[WIN40 US] Ver 2.01 Rev 2 Ext 1 Int 1
File10=\US\SEC32_C2.EXE, 138737-00A Rev 34, Security 32, Win95 [WIN40 US] Ver
1.10 Rev 3 Ext 2 Int 1
File11=\GLOBAL\WIN40\DSVD2.EXE, 138748-00A Rev 31, DSVD NetMeeting [WIN40 US]
Ver 1.20 Rev 1 Ext 3 Int 1
File12=\US\PK32_B2.EXE, 138736-00A Rev 36, Programmable Keys [XXXXX US] Ver
1.10 Rev 2 Ext 2 Int 5
File13=\US\WIN40\USTELE95.EXE, 138760-00A Rev 32, Telephony Modem Support
[WIN40 US] Ver 2.16 Rev 1 Ext 2 Int 1
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File14=\GLOBAL\WIN40\MEDIAM.EXE, 138750-00A Rev 31, Mediamatix MPEG [WIN40
US] Ver 2.00.03 Rev 2 Ext 1 Int 1
File15=\GLOBAL\WIN40\FLASH.EXE, 138746-00A Rev 31, Intel Flash [WIN40 US] Ver
1.00 Rev 1 Ext 2 Int 1
File16=\US\WIN40\USAPPAL.EXE, 138755-00A Rev 31, Appaloosa [WIN40 US] Ver
1.20 Rev 1 Ext 6 Int 1
File17=138812-00A Rev 32, MS Internet Explorer for Win95 - APL [WIN40 US] Ver
4.00 Rev 1 Ext 1 Int 1
File18=\US\WIN40\DTM95_D2.EXE, 138739-00A Rev 31, Insight Management [WIN40
US] Ver 3.20 Rev 4 Ext 2 Int 1
File19=\US\WIN40\USFRESH.EXE, 138749-00A Rev 31, Refresh Rate, S3 DSPLY
[WIN40 US] Ver 1.03.08 Rev 1 Ext 1 Int 1
File20=\US\USMONCON.EXE, 138735-00A Rev 31, Monitor Config Utility [XXXXX US]
Ver 1.00 Rev 1 Ext 4 Int 1
File21=\GLOBAL\CPQNS.EXE, 138734-00A Rev 31, Compaq Network Support [XXXXX
XX] Ver 1.00 Rev 11 Ext 1 Int 1
File22=\US\WIN40\USRMSPT.EXE, 138752-00A Rev 31, MS-DOS Real Mode [WIN40 US]
Ver 1.00 Rev 1 Ext 3 Int 1
File23=\US\WIN40\US4WDIAG.EXE, 138742-00A Rev 31, Diagnostics For Windows
[WIN40 US] Ver 1.20 Rev 2 Ext 1 Int 1
File24=\US\STREF_B4.EXE, 138730-00A Rev 34, Star T Help [XXXXX US] Ver 1.00
Rev 2 Ext 4 Int 3
File25=\US\STOPT_B1.EXE, 138731-00A Rev 34, Star T Options [XXXXX US] Ver
1.00 Rev 2 Ext 1 Int 3
File26=\US\WIN40\USSCGD4.EXE, 138743-00A Rev 31, Safety and Comfort Guide
[WIN40 US] Ver 3.0 Rev 3 Ext 1 Int 1
File27=\GLOBAL\WIN40\POINTCST.EXE, 138756-00A Rev 31, Pointcast [WIN40 US]
Ver 1.38 Rev 2 Ext 2 Int 1
File28=\US\WIN40\USCOLT.EXE, 138754-00A Rev 31, Colt Modem Tester [WIN40 US]
Ver 1.09 Rev 1 Ext 4 Int 1
File29=\US\WIN40\USPEDIT.EXE, 138761-00A Rev 31, MS Policy Editor [WIN40 US]
Ver 1.00 Rev 2 Ext 1 Int 1
File30=138738-00A Rev 41, CIA TOOLS [XXXXX XX] Ver 3.01 Rev 1 Ext 2 Int 2
File31=138829-00A Rev 33, A4TOOLS [WIN40 XX] Ver 1.10 Rev 1 Ext 2 Int 2
File32=138728-00A Rev 32, Diags PC [XXXXX XX] Ver 10.19 Rev 1 Ext 2 Int 2
File33=138729-00A Rev 31, F10 Setup [XXXXX US] Ver 2.00 Rev 8 Ext 2 Int 1
File34=315650-001 Rev 100, INFO.BOM component

[US.WIN40]
Defaults=US,USA
File1=138701-00A Rev 33
File2=138703-00A Rev 31
File3=138740-00A Rev 43
File4=138757-00A Rev 31
File5=138747-00A Rev 32
File6=138745-00A Rev 32
File7=138758-00A Rev 42
File8=\US\WIN40\PWR95_B1.EXE
File9=\US\SEC32_C2.EXE
File10=\GLOBAL\WIN40\DSVD2.EXE
File11=\US\PK32_B2.EXE
File12=\US\WIN40\USTELE95.EXE
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File13=\GLOBAL\WIN40\MEDIAM.EXE
File14=\GLOBAL\WIN40\FLASH.EXE
File15=\US\WIN40\USAPPAL.EXE
File16=138812-00A Rev 32
File17=\US\WIN40\DTM95_D2.EXE
File18=\US\WIN40\USFRESH.EXE
File19=\US\USMONCON.EXE
File20=\GLOBAL\CPQNS.EXE
File21=\US\WIN40\USRMSPT.EXE
File22=\US\WIN40\US4WDIAG.EXE
File23=\US\STREF_B4.EXE
File24=\US\STOPT_B1.EXE
File25=\US\WIN40\USSCGD4.EXE
File26=\GLOBAL\WIN40\POINTCST.EXE
File27=\US\WIN40\USCOLT.EXE
File28=\US\WIN40\USPEDIT.EXE
File29=138738-00A Rev 41
File30=138829-00A Rev 33
File31=138728-00A Rev 32
File32=138729-00A Rev 31


System Configuration Memory
  00 - 0F :    42 00 07 00    10 00 06 08    09 98 26 02    50 80 00 00
  10 - 1F :    40 F2 F0 10    03 80 02 00    3C 41 00 00    00 FF 63 00
  20 - 2F :    00 00 00 00    7E 29 00 40    00 97 00 45    80 00 06 D9
  30 - 3F :    00 3C 19 80    01 11 XX XX    XX XX XX XX    XX XX XX XX

BIOS Data Area
  40:0000 :    F8 03 F8 02    E8 03 00 00    78 03 00 00    00 00 13 02
  40:0010 :    27 C6 01 80    02 00 00 00    00 00 1E 00    1E 00 00 00
  40:0020 :    00 00 00 00    00 00 00 00    00 00 00 00    00 00 00 00
  40:0030 :    00 00 00 00    00 00 00 00    00 00 00 00    00 00 01 00
  40:0040 :    50 80 70 3F    01 00 00 AE    10 6D 80 00    FF FF 00 00
  40:0050 :    00 00 00 00    00 00 00 00    00 00 00 00    00 00 00 00
  40:0060 :    00 00 00 D4    03 29 30 E0    FF 00 20 FF    16 21 0A 00
  40:0070 :    00 00 00 12    00 01 08 01    14 14 14 3C    01 01 01 01
  40:0080 :    1E 00 3E 00    2F 10 00 E0    09 11 0B 01    50 00 00 01
  40:0090 :    17 00 00 00    00 00 00 00    00 00 00 00    00 00 00 00
  40:00A0 :    00 00 00 00    00 00 00 00    7B 28 00 C0    00 00 00 00
  40:00B0 :    00 00 00 00    00 00 00 00    00 00 00 00    00 00 00 00
  40:00C0 :    00 00 00 00    00 00 00 00    00 00 00 00    00 00 00 00
  40:00D0 :    00 00 00 00    00 00 00 00    00 00 00 00    00 00 00 00
  40:00E0 :    00 00 00 00    00 00 00 00    00 00 00 00    00 00 00 00
  40:00F0 :    00 00 00 00    00 00 00 00    00 00 00 00    00 00 00 00

Interrupt Vector Table
  00 - 03 :    00C9:000B      C0FF:F508      0F65:0016      0000:0224
  04 - 07 :    0070:0465      F000:FF54      F000:331E      F000:9BD0
  08 - 0B :    CC00:0000      0F65:0028      F000:9BD0      F000:9BD0
  0C - 0F :    F000:9BD0      F000:9BD0      0F65:009A      0070:0465
  10 - 13 :    CC70:0007      F000:F84D      F000:F841      FD5E:2537
```

14 - 17 :	F000:E739	0254:0240	0070:042D	029D:0A28
18 - 1B :	F000:49C5	1026:002F	F000:FE6E	029D:0604
1C - 1F :	CC00:001D	F000:F0A4	0000:0522	C000:5D06
20 - 23 :	00C9:0FA8	105A:042F	FCB2:2FF7	FD7B:2367
24 - 27 :	1148:0003	00C9:0FBC	00C9:0FC6	00C9:0FD0
28 - 2B :	00C9:106C	0070:0466	029D:05B4	00C9:106C
2C - 2F :	00C9:106C	00C9:106C	102B:0000	105A:03F6
30 - 33 :	C90F:E4EA	F000:9B00	00C9:106C	113A:0001
34 - 37 :	00C9:106C	00C9:106C	00C9:106C	00C9:106C
38 - 3B :	00C9:106C	00C9:106C	00C9:106C	00C9:106C
3C - 3F :	00C9:106C	00C9:106C	00C9:106C	00C9:106C
40 - 43 :	F000:CEB6	F000:E801	F000:F065	C000:7032
44 - 47 :	F000:9BD0	F000:9BD0	F000:E401	F000:9BD0
48 - 4B :	F000:9BD0	F000:9BD0	F000:9BD0	FD4C:2657
4C - 4F :	F000:9BD0	F000:9BD0	F000:9BD0	0070:04FC
50 - 53 :	F000:9BD0	F000:9BD0	F000:9BD0	F000:9BD0
54 - 57 :	F000:9BD0	F000:9BD0	F000:9BD0	F000:9BD0
58 - 5B :	F000:9BD0	F000:9BD0	F000:9BD0	F000:9BD0
5C - 5F :	1147:000D	F000:9BD0	F000:9BD0	F000:9BD0
60 - 63 :	0000:0000	0000:0000	0000:0000	0000:0000
64 - 67 :	0000:0000	0000:0000	0000:0000	113B:0040
68 - 6B :	F000:9BD0	F000:9BD0	F000:9BD0	F000:9BD0
6C - 6F :	F000:9BD0	C000:39E6	F000:9BD0	F000:9BD0
70 - 73 :	0F65:0035	F000:9C1F	F000:9BD0	F000:9BD0
74 - 77 :	0F65:00E2	F000:9C28	0F65:00FA	F000:9BD0
78 - 7B :	0000:0000	0000:0000	0000:0000	0000:0000
7C - 7F :	0000:0000	0000:0000	0000:0000	0000:0000
80 - 83 :	0000:0000	0000:0000	0000:0000	0000:0000
84 - 87 :	0000:0000	0000:0000	0000:0000	0000:0000
88 - 8B :	0000:0000	0000:0000	0000:0000	0000:0000
8C - 8F :	0000:0000	0000:0000	0000:0000	0000:0000
90 - 93 :	0000:0000	0000:0000	0000:0000	0000:0000
94 - 97 :	0000:0000	0000:0000	0000:0000	0000:0000
98 - 9B :	0000:0000	0000:0000	0000:0000	0000:0000
9C - 9F :	0000:0000	0000:0000	0000:0000	0000:0000
A0 - A3 :	0000:0000	0000:0000	0000:0000	0000:0000
A4 - A7 :	0000:0000	0000:0000	0000:0000	0000:0000
A8 - AB :	0000:0000	0000:0000	0000:0000	0000:0000
AC - AF :	0000:0000	0000:0000	0000:0000	0000:0000
B0 - B3 :	0000:0000	0000:0000	0000:0000	0000:0000
B4 - B7 :	0000:0000	0000:0000	0000:0000	0000:0000
B8 - BB :	0000:0000	0000:0000	0000:0000	0000:0000
BC - BF :	0000:0000	0000:0000	0000:0000	0000:0000
C0 - C3 :	0000:0000	0000:0000	0000:0000	0000:0000
C4 - C7 :	0000:0000	0000:0000	0000:0000	0000:0000
C8 - CB :	0000:0000	0000:0000	0000:0000	0000:0000
CC - CF :	0000:0000	0000:0000	0000:0000	0000:0000
D0 - D3 :	0000:0000	0000:0000	0000:0000	0000:0000
D4 - D7 :	0000:0000	0000:0000	0000:0000	0000:0000
D8 - DB :	0000:0000	0000:0000	0000:0000	0000:0000
DC - DF :	0000:0000	0000:0000	0000:0000	0000:0000
E0 - E3 :	0000:0000	0000:0000	0000:0000	0000:0000

```
  E4 - E7 :    0000:0000      0000:0000      0000:0000      0000:0000
  E8 - EB :    0000:0000      0000:0000      0000:0000      0000:0000
  EC - EF :    0000:0000      0000:0000      0000:0000      0000:0000
  F0 - F3 :    0000:0000      0000:0000      0000:0000      0000:0000
  F4 - F7 :    0000:0000      0000:0000      0000:0000      0000:0000
  F8 - FB :    0000:0000      0000:0000      0000:0000      0000:0000
  FC - FF :    0000:0000      0000:0000      0000:0000      0000:0000

Is System Information Table supported . . . . . Yes
Is Desktop Management Interface supported . . . No

SIT Header Record
  21  53  49  54


Power Conservation Record
  01  11  FF  2F  FB  02  01  48  01  00  88  00  22  00  00  00
  B0  C4  04

SIT Record Id . . . . . 1 (01h)
SIT Record Length . . . . . 17 (11h)
Is system standby supported . . . . . Yes
Is hard drive timeout supported . . . . . Yes
Is screen save supported . . . . . Yes
Are the power conservation beeps controllable . Yes
Is system idle timeout supported . . . . . Yes
Is hibernation supported . . . . . Yes
Is the processor speed configurable . . . . . Yes
Is the volume controllable . . . . . Yes
Is maximum brightness controllable . . . . . Yes
Is advanced power management supported . . . . . Yes
Are popups supported . . . . . Yes
Is the size of the popups changeable . . . . . No
Is the location of the popups changeable . . . . Yes
Is desktop power management supported . . . . . No
Is the LED blink controllable . . . . . No
Can PCMCIA slot be turned off during runtime . . Yes
Can PCMCIA slot be controlled during standby . . Yes
Does hibernation only occur at lowbat . . . . . No
Is portable AC power management supported . . . Yes
Is monitor off mode supported . . . . . Yes
Is AC hard drive timeout supported . . . . . Yes
Is AC screen save supported . . . . . Yes
Is software power down available . . . . . Yes
Is a modem installed in the option slot . . . . No
Are screen save and system idle the same . . . . No
Configurable processor speeds . . . . . 1 and 1/2
Is desktop suspend state supported . . . . . No
Quick energy save support type . . . . . Not supported
SMI Offset . . . . . 0 (00h)
SMI Segment . . . . . 45056 (B000h)
Number of Batteries . . . . . 4
```

```
SMI Generation scheme . . . . . Int 10
Number of programmable keys . . . . . 4


System Standby Timeout Record
  02  12  00  01  02  03  04  05  06  07  08  09  0A  0B  0C  0D
  0E  0F  10  11

SIT Record Id . . . . . 2 (02h)
SIT Record Length . . . . . 18 (12h)
Entry # 0 . . . . . 0 (00h) minute(s)
Entry # 1 . . . . . 1 (01h) minute(s)
Entry # 2 . . . . . 2 (02h) minute(s)
Entry # 3 . . . . . 3 (03h) minute(s)
Entry # 4 . . . . . 4 (04h) minute(s)
Entry # 5 . . . . . 5 (05h) minute(s)
Entry # 6 . . . . . 6 (06h) minute(s)
Entry # 7 . . . . . 7 (07h) minute(s)
Entry # 8 . . . . . 8 (08h) minute(s)
Entry # 9 . . . . . 9 (09h) minute(s)
Entry # 10 . . . . . 10 (0Ah) minute(s)
Entry # 11 . . . . . 11 (0Bh) minute(s)
Entry # 12 . . . . . 12 (0Ch) minute(s)
Entry # 13 . . . . . 13 (0Dh) minute(s)
Entry # 14 . . . . . 14 (0Eh) minute(s)
Entry # 15 . . . . . 15 (0Fh) minute(s)
Entry # 16 . . . . . 16 (10h) minute(s)
Entry # 17 . . . . . 17 (11h) minute(s)


Screen Save/Monitor Timeout Record
  03  20  00  01  02  03  04  05  06  07  08  09  0A  0B  0C  0D
  0E  0F  10  11  12  13  14  15  16  17  18  19  1A  1B  1C  1D
  1E  1F

SIT Record Id . . . . . 3 (03h)
SIT Record Length . . . . . 32 (20h)
Entry # 0 . . . . . 0 (00h) minute(s)
Entry # 1 . . . . . 1 (01h) minute(s)
Entry # 2 . . . . . 2 (02h) minute(s)
Entry # 3 . . . . . 3 (03h) minute(s)
Entry # 4 . . . . . 4 (04h) minute(s)
Entry # 5 . . . . . 5 (05h) minute(s)
Entry # 6 . . . . . 6 (06h) minute(s)
Entry # 7 . . . . . 7 (07h) minute(s)
Entry # 8 . . . . . 8 (08h) minute(s)
Entry # 9 . . . . . 9 (09h) minute(s)
Entry # 10 . . . . . 10 (0Ah) minute(s)
Entry # 11 . . . . . 11 (0Bh) minute(s)
Entry # 12 . . . . . 12 (0Ch) minute(s)
```

```
Entry # 13 . . . . . 13 (0Dh) minute(s)
Entry # 14 . . . . . 14 (0Eh) minute(s)
Entry # 15 . . . . . 15 (0Fh) minute(s)
Entry # 16 . . . . . 16 (10h) minute(s)
Entry # 17 . . . . . 17 (11h) minute(s)
Entry # 18 . . . . . 18 (12h) minute(s)
Entry # 19 . . . . . 19 (13h) minute(s)
Entry # 20 . . . . . 20 (14h) minute(s)
Entry # 21 . . . . . 21 (15h) minute(s)
Entry # 22 . . . . . 22 (16h) minute(s)
Entry # 23 . . . . . 23 (17h) minute(s)
Entry # 24 . . . . . 24 (18h) minute(s)
Entry # 25 . . . . . 25 (19h) minute(s)
Entry # 26 . . . . . 26 (1Ah) minute(s)
Entry # 27 . . . . . 27 (1Bh) minute(s)
Entry # 28 . . . . . 28 (1Ch) minute(s)
Entry # 29 . . . . . 29 (1Dh) minute(s)
Entry # 30 . . . . . 30 (1Eh) minute(s)
Entry # 31 . . . . . 31 (1Fh) minute(s)
```

```
Hard Drive Timeout Record
  04  12  00  01  02  03  04  05  06  07  08  09  0A  0B  0C  0D
  0E  0F  10  11

SIT Record Id . . . . . 4 (04h)
SIT Record Length . . . . . 18 (12h)
Entry # 0 . . . . . 0 (00h) minute(s)
Entry # 1 . . . . . 1 (01h) minute(s)
Entry # 2 . . . . . 2 (02h) minute(s)
Entry # 3 . . . . . 3 (03h) minute(s)
Entry # 4 . . . . . 4 (04h) minute(s)
Entry # 5 . . . . . 5 (05h) minute(s)
Entry # 6 . . . . . 6 (06h) minute(s)
Entry # 7 . . . . . 7 (07h) minute(s)
Entry # 8 . . . . . 8 (08h) minute(s)
Entry # 9 . . . . . 9 (09h) minute(s)
Entry # 10 . . . . . 10 (0Ah) minute(s)
Entry # 11 . . . . . 11 (0Bh) minute(s)
Entry # 12 . . . . . 12 (0Ch) minute(s)
Entry # 13 . . . . . 13 (0Dh) minute(s)
Entry # 14 . . . . . 14 (0Eh) minute(s)
Entry # 15 . . . . . 15 (0Fh) minute(s)
Entry # 16 . . . . . 16 (10h) minute(s)
Entry # 17 . . . . . 17 (11h) minute(s)
```

```
Security Features Record
  05  03  04  BE  78
```

```
SIT Record Id . . . . . 5 (05h)
SIT Record Length . . . . . 3 (03h)
Is diskette drive control supported . . . . . Yes
Is diskette drive write control supported . . . Yes
Is serial port control supported . . . . . Yes
Is parallel port control supported . . . . . Yes
Is PCMCIA slot control supported . . . . . Yes
Is SafeStart virus detection supported . . . . . No
Password type . . . . . 7 character
Is locking of password bytes supported . . . . . Yes
Allow changeable features if setup password . . Yes


Processor/Memory/Cache Record
  06  15  0A  01  07  20  00  06  10  00  90  00  00  00  00  00
  00  00  00  00  00  00  00

SIT Record Id . . . . . 6 (06h)
SIT Record Length . . . . . 21 (15h)
Processor speed . . . . . 266  MHz
L2 Cache
  Cache installed . . . . . Installed
  Cache option . . . . . Optional/Permanent
  Write policy . . . . . Write back
  Size . . . . . 512 Kbytes
  Speed . . . . . 0 ns
Total soldered memory . . . . . 16 MB
Maximum memory installable . . . . . 144 MB
L3 Cache
  Processor
    Cache option . . . . . Not available
    Cache installed . . . . . Not installed
    Write policy . . . . . Write through
    Size . . . . . 0 Kbytes
    Speed . . . . . 0 ns
  Processor 2
    Cache option . . . . . Not available
    Cache installed . . . . . Not installed
    Write policy . . . . . Write through
    Size . . . . . 0 Kbytes
    Speed . . . . . 0 ns
  Processor 3
    Cache option . . . . . Not available
    Cache installed . . . . . Not installed
    Write policy . . . . . Write through
    Size . . . . . 0 Kbytes
    Speed . . . . . 0 ns
  Processor 4
    Cache option . . . . . Not available
    Cache installed . . . . . Not installed
    Write policy . . . . . Write through
```

```
    Size . . . . . . . . . . . . . . . . . . . . . . 0 Kbytes
    Speed  . . . . . . . . . . . . . . . . . . . . . 0 ns
Processor designer . . . . . . . . . . . . . . . . . 0


General System Peripheral and Input Device Information Record
  07  1D  E7  11  82  33  33  30  35  3A  3F  04  11  00  12  1E
  24  12  27  01  00  AC  00  01  00  00  01  24  13  F0  F0

SIT Record Id  . . . . . . . . . . . . . . . . . . . 7 (07h)
SIT Record Length  . . . . . . . . . . . . . . . . . 29 (1Dh)
Does ROM support F10 partition . . . . . . . . . . . Yes
Is the System ROM flashable  . . . . . . . . . . . . Yes
Backup copy of CMOS supported  . . . . . . . . . . . No
Is on-board bootable SCSI supported  . . . . . . . . No
Does BIOS support hard drive DMA . . . . . . . . . . Yes
Does system have PCMCIA capabilities . . . . . . . . Yes
Does system support enhanced IDE DMA . . . . . . . . Yes
Does ROM have CD-ROM boot support  . . . . . . . . . Yes
Does system ROM have a boot block  . . . . . . . . . No
Does ROM have embedded diagnostics . . . . . . . . . No
Does ROM support POST speedup feature  . . . . . . . Yes
Is TV Tuner Installed  . . . . . . . . . . . . . . . No
Is El Torito Standard CD-ROM boot available  . . . . No
Form Factor  . . . . . . . . . . . . . . . . . . . . Laptop notebook or sub-
notebook
Soft drive type 65
  Is soft drive type supported . . . . . . . . . . . Yes
  Number of bytes of soft drive type data  . . . . 5 bytes
  Location of soft drive type data . . . . . . . . Extended System Configura-
tion Memory
  What is starting address of the data . . . . . . 48 (30h)
Soft drive type 66
  Is soft drive type supported . . . . . . . . . . . Yes
  Number of bytes of soft drive type data  . . . . 5 bytes
  Location of soft drive type data . . . . . . . . Extended System Configura-
tion Memory
  What is starting address of the data . . . . . . 53 (35h)
Soft drive type 68
  Is soft drive type supported . . . . . . . . . . . Yes
  Number of bytes of soft drive type data  . . . . 5 bytes
  Location of soft drive type data . . . . . . . . Extended System Configura-
tion Memory
  What is starting address of the data . . . . . . 58 (3Ah)
Soft drive type 15
  Is soft drive type supported . . . . . . . . . . . Yes
  Number of bytes of soft drive type data  . . . . 5 bytes
  Location of soft drive type data . . . . . . . . Extended System Configura-
tion Memory
  What is starting address of the data . . . . . . 63 (3Fh)
Panel ID . . . . . . . . . . . . . . . . . . . . . . 4
```

```
Number of software configurable serial ports . .  1
Is the System ROM socketed . . . . . .  No
Integrated monitor and system board . . . . . .  No
Type of special modem installed . . . . . .  0
Is EPP mode supported . . . . . .  No
Client Management support level . . . . . .  Enhanced
Does drive 0 support DFP . . . . . .  Yes
Does drive 1 support DFP . . . . . .  No
Does drive 2 support DFP . . . . . .  No
Does drive 3 support DFP . . . . . .  No
PCI bus master enable/disable
  CMOS offset . . . . . .  30
  Bit location . . . . . .  4
  CMOS type . . . . . .  Non-Volatile RAM
VGA palette snoop enable/disable
  CMOS offset . . . . . .  18
  Bit location . . . . . .  7
  CMOS type . . . . . .  Non-Volatile RAM
Are multiple PCI busses supported . . . . . .  Yes
I2C I/O Address . . . . . .  44032
Bit position of I2C SCL Signal . . . . . .  0
Bit position of I2C SDA Signal . . . . . .  0
I2C start/stop conditions . . . . . .  Normal
ATAPI device information
  First logical device . . . . . .  Not Installed
  Second logical device . . . . . .  CD-ROM Drive
  Third logical device . . . . . .  Not Installed
  Fourth logical device . . . . . .  Not Installed
3-D audio support
  Audio device . . . . . .  Not present
  Tone control device . . . . . .  Not present
Is Quick Boot Supported . . . . . .  Yes
Are Stick Ctrl, Alt, Shift Keys supported . . .  No
Are Microsoft scan codes supported . . . . . .  No
Is power inhibit supported . . . . . .  No
Back to back I/O delay Index 0 . . . . . .  61459 (F013h)
Back to back I/O delay Index 1 . . . . . .  2288 (8F0h)


Memory Module Information Record
  08  09  02  00  00  46  03  01  10  46  03

SIT Record Id . . . . . .  8 (08h)
SIT Record Length . . . . . .  9 (09h)
Number of existing memory sockets . . . . . .  2
System socket number . . . . . .  0
  Expansion board slot number . . . . . .  0
  Amount of memory in MB . . . . . .  0 MB
  Is parity supported . . . . . .  No
System socket number . . . . . .  1
  Expansion board slot number . . . . . .  0
```

```
  Amount of memory in MB . . . . . 16 MB
  Speed of memory in ns . . . . . 70 ns
  Memory Form Factor . . . . . DIMM
  Is parity supported . . . . . No


Timeout Default Value Record
  09  0A  03  01  01  4B  64  05  02  03  4B  64

SIT Record Id . . . . . 9 (09h)
SIT Record Length . . . . . 10 (0Ah)
Conservation parameters when power conservation level is set to High
  Standby . . . . . 3 minute(s) (03h)
  Hard drive or system idle timeout . . . . . 1 minute(s) (01h)
  Screen save/monitor timeout . . . . . 1 minute(s) (01h)
  Maximum brightness . . . . . 75 % (4Bh)
  Processor speed . . . . . 100 % (64h)
Conservation parameters when power conservation level is set to Medium
  Standby . . . . . 5 minute(s) (05h)
  Hard drive or system idle timeout . . . . . 2 minute(s) (02h)
  Screen save/monitor timeout . . . . . 3 minute(s) (03h)
  Maximum brightness . . . . . 75 % (4Bh)
  Processor speed . . . . . 100 % (64h)


CMOS and NVRAM Information Record
  0A  05  7F  00  3F  00  01

SIT Record Id . . . . . 10 (0Ah)
SIT Record Length . . . . . 5 (05h)
Number of bytes of NVRAM or ECMOS . . . . . 127 (7Fh)
Number of bytes of CMOS . . . . . 63 (3Fh)
NVRAM access type . . . . . Index:820h, Data:800h-81fh


Extended Disk Support Record
  0E  02  A1  DE

SIT Record Id . . . . . 14 (0Eh)
SIT Record Length . . . . . 2 (02h)
Pointer to extended disk table . . . . . 56993


Product Name Header Record
  10  0E  41  72  6D  61  64  61  20  37  37  39  32  44  4D  00

SIT Record Id . . . . . 16 (10h)
SIT Record Length . . . . . 14 (0Eh)
```

```
Product Name (Driver)  . . . . . Armada 7792DM
Version information for Compaq Diagnostics for Windows
  CPQDIAG.EXE  . . . . . 8/26/98 9:50:34AM
  DL_DISK.DLL  . . . . . 8/26/98 10:04:00AM
  DL_SCSI.DLL  . . . . . 8/26/98 10:04:10AM
  DL_PAR.DLL . . . . . 8/26/98 10:04:10AM
  DL_SER.DLL . . . . . 8/26/98 10:04:12AM
  DL_AUDIO.DLL . . . . . 8/26/98 10:03:58AM
  DL_CPU.DLL . . . . . 8/26/98 10:04:00AM
  DL_INPUT.DLL . . . . . 8/26/98 10:04:02AM
  DL_MODEM.DLL . . . . . 8/26/98 10:04:06AM
  DL_VIDEO.DLL . . . . . 8/26/98 10:04:14AM
  DL_MEM.DLL . . . . . 8/26/98 10:04:04AM
```

Further features which are contemplated as advantageous with the presently disclosed innovations are described in copending U.S. application _____, attorney docket number P98-2318, which is owned in common with the present application and has the same filing date as the present application, and which is hereby incorporated by reference.

Definitions:

Following are short definitions of the usual meanings of some of the technical terms which are used in the present application. (However, those of ordinary skill will recognize whether the context requires a different meaning.) Additional definitions can be found in the standard technical dictionaries and journals.

Hardware: the physical, tangible components of a computer system.

Operating system: a set of programs controlling the operations of a computer system, such as assemblers or input and output facilities.

Configuration: the collection of internal settings that controls how hardware and software function.

Modifications and Variations

As will be recognized by those skilled in the art, the innovative concepts described in the present application can be modified and varied over a tremendous range of applications, and accordingly the scope of patented subject matter is not limited by any of the specific exemplary teachings given.

In a preferred embodiment, the presently disclosed innovation is used on a computer running any of the Windows 95/98/NT/2000 operating systems. Any other operating system may be used with the present innovations.

The base and current computer hardware and operating system information is captured in ASCII text files using Compaq Diagnostics for Windows. Storage of the data in any format is within the contemplation of the invention.

The design builds on Compaq Diagnostics for Windows. However, any diagnostics program could be the foundation for the presently disclosed innovations.

The diagnostics program can be an operating system level program, or embedded diagnostics can be used.

The hardware and operating system configurations may be gathered more frequently than only at program installation and program execution. For instance, each time the hardware or operating system undergoes any configuration change, the new configuration is captured and recorded as an ASCII text file. Or, the system may run cpdiaga.exe at each startup, recording configuration changes. In embodiments where there are many sets of configurations stored, each configuration is time stamped so as to preserve a complete chronological record of configuration settings for the computer. Additionally, in embodiments that record configuration more frequently, each time

current configurations are recorded, the configurations could automatically be compared with the previous configurations, and only the changes captured in ASCII text files.

Information other than just hardware and operating system configurations can be captured by the program. Any readable information accessible to the program, be it an operating system level diagnostics program or an embedded diagnostics program, may be captured and used as a service tool. Software and DLL (Dynamic Link Library) versions could be checked. Anything stored in the Windows Registry or in any directory may also be accessed and used in servicing computers.

The amount of processing of the configuration data done by the diagnostics application can vary. The diagnostics application can merely gather and relay the configuration information, or it could perform some comparison. It could also filter the data, sending only the changes in configuration, or only send data about certain hardware or software.

Comparison and other processing of configuration data could occur at the user's computer locally, or it could be done remotely by a computer at the customer service site.

The program can prompt the user for input regarding the problem, or the data could automatically be sent without user input. Additionally, only the user input information might be sent, with or without the configuration data. These options can be made available as user selected options, or they may be made automatic so that the user need not initiate them.

It should also be noted that the disclosed innovative ideas are not limited only to systems based on an x86-compatible microprocessor, but can also be implemented in systems using 680x0, RISC, or other

processor architectures.

It should also be noted that the disclosed innovative ideas are not by any means limited to systems using a single-processor CPU, but can also be implemented in computers using multiprocessor architectures.

Additional general background, which helps to show the knowledge of those skilled in the art regarding the system context, and of variations and options for implementations, may be found in the following publications, all of which are hereby incorporated by reference. In particular, many details may be found in the books from MindShare, Inc., including PROTECTED MODE SOFTWARE ARCHITECTURE, CARDBUS SYSTEM ARCHITECTURE, EISA SYSTEM ARCHITECTURE, ISA SYSTEM ARCHITECTURE, 80486 SYSTEM ARCHITECTURE, PENTIUM PROCESSOR SYSTEM ARCHITECTURE, PCMCIA SYSTEM ARCHITECTURE, PLUG AND PLAY SYSTEM ARCHITECTURE, PCI SYSTEM ARCHITECTURE, USB SYSTEM ARCHITECTURE, and PENTIUM PRO PROCESSOR SYSTEM ARCHITECTURE, all of which are hereby incorporated by reference, and in the PENTIUM PROCESSOR FAMILY DEVELOPER'S MANUAL 1997, the MULTIPROCESSOR SPECIFICATION (1997), the INTEL ARCHITECTURE OPTIMIZATIONS MANUAL, the INTEL ARCHITECTURE SOFTWARE DEVELOPER'S MANUAL, the PERIPHERAL COMPONENTS 1996 databook, the PENTIUM PRO PROCESSOR BIOS WRITER'S GUIDE (version 2.0, 1996), and the PENTIUM PRO FAMILY DEVELOPER'S MANUALS from Intel, all of which are hereby incorporated by reference.

CLAIMS

What is claimed is:

1. A method of servicing a computer, the computer including hardware and an operating system, comprising the steps of:
capturing base configuration data for the computer;
capturing the current configuration data; and
automatically comparing the base and current configuration data.

2. The method of Claim 1, wherein the configuration data relates to the hardware and operating system of the computer.

3. The method of Claim 1, wherein the base configuration data is captured and stored more than once before current configuration data is captured.

4. The method of Claim 1, wherein the configuration data is stored as an ASCII text file.

5. The method of Claim 1, wherein the base data is captured by a diagnostics program on the computer at the time the diagnostics program is installed.

6. The method of Claim 1, further comprising the step of highlighting the differences between the base and current configuration data.

7. The method of Claim 1, wherein the step of comparing is done at the user's computer.

8. The method of Claim 1, wherein the configuration data captured includes information on the computer's memory.

9. A method of servicing a computer, comprising the steps of:
when there is a problem with the computer, running a diagnostic program that captures the configuration data of hardware and operating system on the computer;
comparing the configuration data with a base set of configuration data; and
sending configuration data to a remote computer.

10. The method of Claim 9, wherein the comparison is used to service the computer.

11. The method of Claim 9, further comprising the step of highlighting the differences between the base and current configuration data.

12. The method of Claim 9, wherein multiple sets of configuration data are captured and compared to each other and the base configuration.

13. The method of Claim 12, wherein all sets of configuration data are time stamped.

14. A software and hardware diagnostics architecture for a computer, comprising:

a diagnostics program installed on the computer capable of capturing configuration data from the computer

wherein when computer service procedures are initiated, the program captures a base set of configuration data, and later captures a current set of configuration data for comparison to the base set of configuration data, the comparison used to service the computer.

15. The architecture of Claim 14, wherein the configuration data relates to hardware and operating system settings on the computer.

16. The architecture of Claim 14, wherein the diagnostics program captures configuration data on installation and on at least one other occasion.

17. The architecture of Claim 14, wherein differences between the base and current configuration data are highlighted.

18. The architecture of Claim 14, wherein the base and current configuration data are stored in ASCII text files.

19. The architecture of Claim 14, wherein the configuration data captured is any data in the computer.

20. A computer, comprising:

a diagnostics program installed on the computer capable of capturing current configuration data from the computer;

stored base configuration data for the computer;

wherein the current configuration data is compared to the base configuration data.

21. The computer of Claim 20, wherein the configuration data relates to hardware and operating system settings on the computer.

22. The computer of Claim 20, wherein a program other than the diagnostics program compares the base and current configuration data.

23. The computer of Claim 20, wherein the base data is captured when the diagnostics program is installed.

24. The computer of Claim 20, wherein the differences between the base and current configuration data are highlighted.

ABSTRACT

A method of customer service that uses a program which captures the computer's hardware and operating system configuration when the program is installed, and also captures the hardware and operating system configuration upon request (when the user needs customer service help), and compares the two, highlighting differences.

0420505 - 4050505

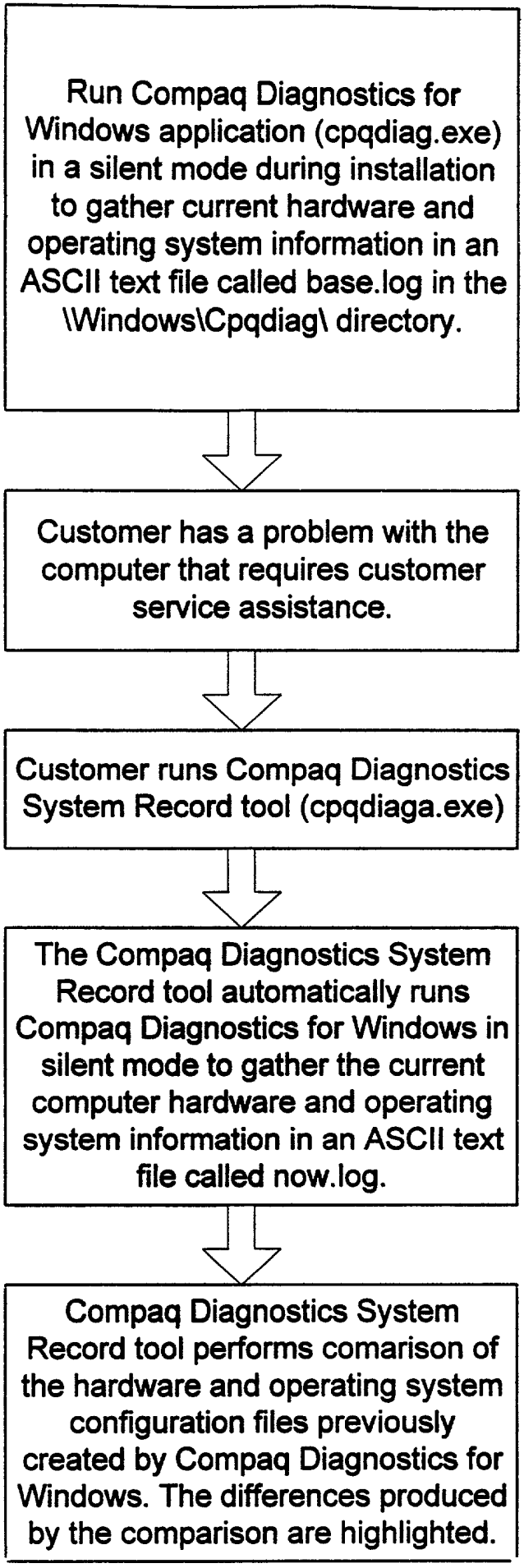
Run Compaq Diagnostics for Windows application (cpqdiag.exe) in a silent mode during installation to gather current hardware and operating system information in an ASCII text file called base.log in the \Windows\Cpqdiag\ directory.
step 102
Customer has a problem with the computer that requires customer service assistance.
step 104
Customer runs Compaq Diagnostics System Record tool (cpqdiaga.exe)
step 106
The Compaq Diagnostics System Record tool automatically runs Compaq Diagnostics for Windows in silent mode to gather the current computer hardware and operating system information in an ASCII text file called now.log.
step 108
Compaq Diagnostics System Record tool performs comarison of the hardware and operating system configuration files previously created by Compaq Diagnostics for Windows. The differences produced by the comparison are highlighted.
step 110

Figure 1

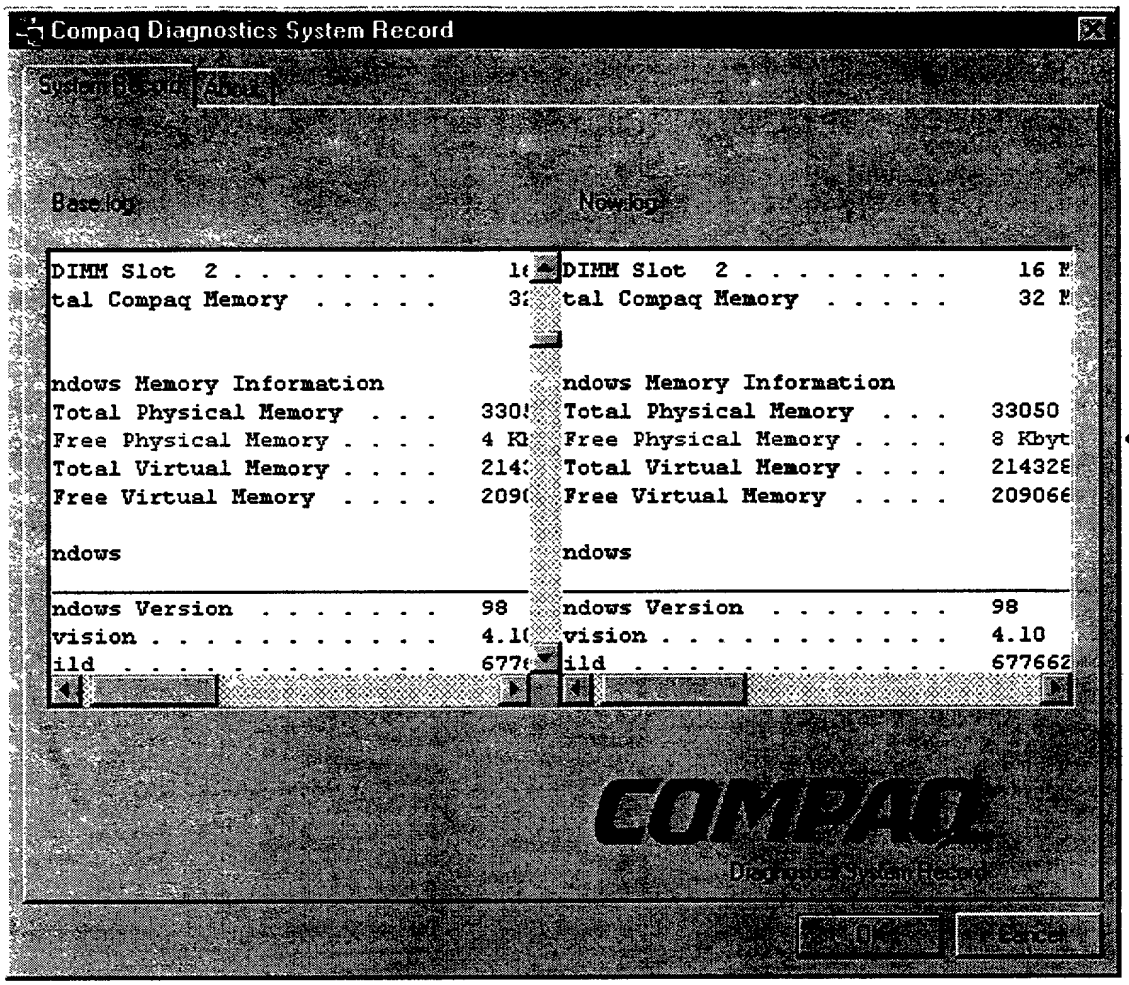
Compaq Diagnostics System Record
System Report
About
Baseline
Nowlog
DIMM Slot 2 1
tal Compaq Memory 3
ndows Memory Information
Total Physical Memory . . . 330
Free Physical Memory . . . . 4 K
Total Virtual Memory 214
Free Virtual Memory 209
ndows
ndows Version 98
vision 4.1
ild 677
DIMM Slot 2 . . . . . 16 M
tal Compaq Memory . . . . . 32 M
ndows Memory Information
Total Physical Memory . . . 33050
Free Physical Memory . . . . 8 Kbyt
Total Virtual Memory 214328
Free Virtual Memory 209066
ndows
ndows Version 98
vision 4.10
ild 677662
COMPAQ
Diagnostics System Record
OK
Cancel
202
204

FIGURE 2

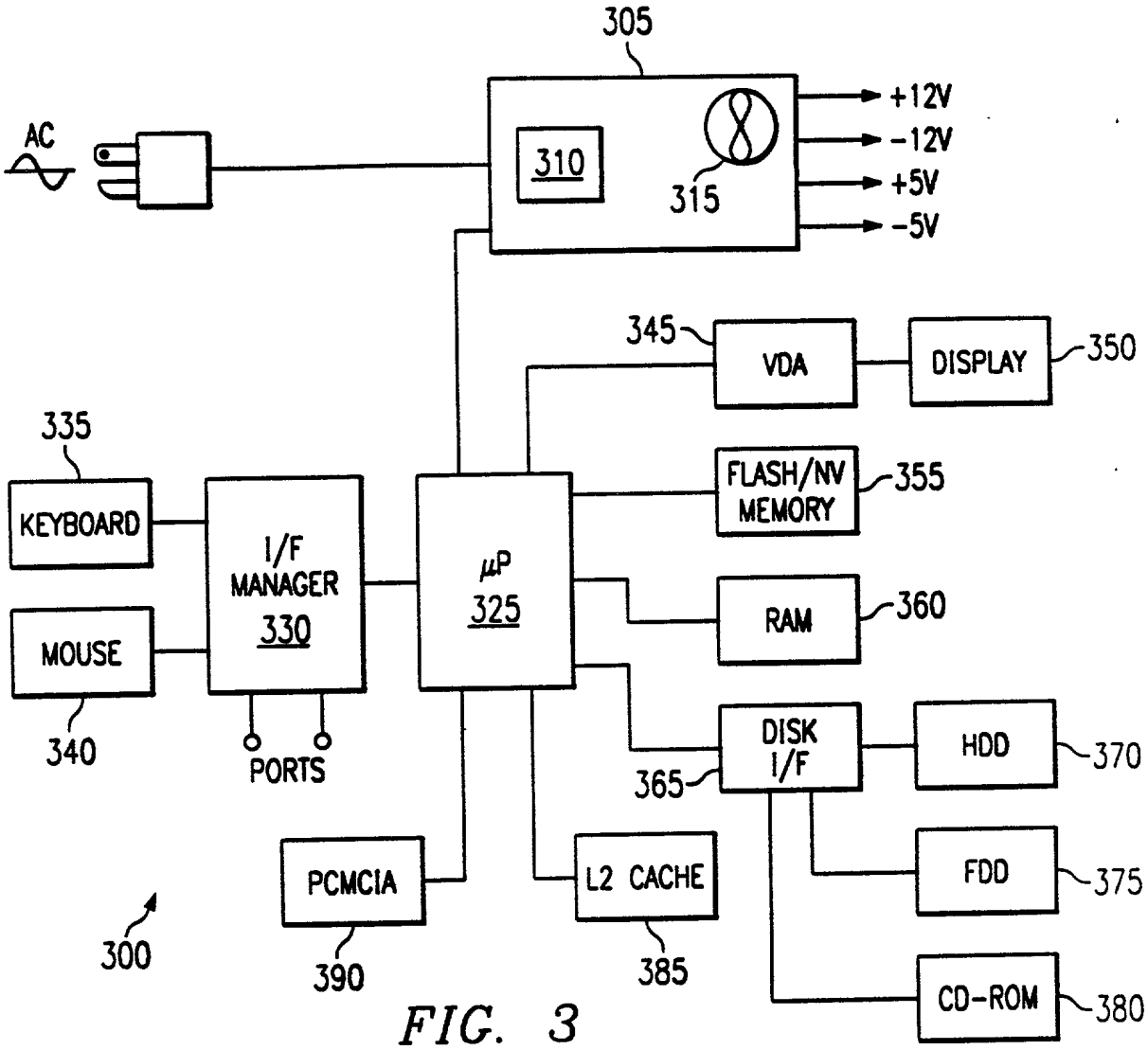
305
AC
310
315
+12V
-12V
+5V
-5V
345
VDA
DISPLAY
350
335
KEYBOARD
MOUSE
340
I/F
MANAGER
330
PORTS
μP
325
FLASH/NV
MEMORY
355
RAM
360
DISK
I/F
365
HDD
370
FDD
375
CD-ROM
380
PCMCIA
390
L2 CACHE
385
300

FIG. 3

Attorney Docket No. P98-2369

DECLARATION

SOLE/JOINT INVENTOR
ORIGINAL

As a below named inventor, I hereby declare that: my residence, post office address, and citizenship are as stated below next to my name. I believe I am the original, first, and sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Automatic Capture and Comparison of Computer Configuration Data

as described in the specification attached.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above; that I do not know and do not believe the same was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application; that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representative or assigns more than twelve months prior to this application; and that I acknowledge the duty to disclose information of which I am aware which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations § 1.56(a). Such information is material when it is not cumulative to information already of record or being made of record in the application, and

(1) it establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
(2) it refutes, or is inconsistent with, a position the applicant has taken or may take in:
    (i) opposing an argument of unpatentability relied on by the Office, or
    (ii) asserting an argument of patentability.

I hereby claim foreign priority benefits under Title 35, United States Code § 119 of any foreign application(s) for patent or inventor's certificates listed below and have also identified below any foreign application(s) having a filing date before that of the application(s) on which priority is claimed:

COUNTRY	APPLICATION NUMBER	DATE OF FILING	PRIORITY CLAIMED UNDER 35 USC 119
			☐ YES ☐ NO

I hereby claim the benefit under Title 35 United States Code § 120 of any United States application(s) listed below and, insofar as any subject matter of any claim of this application is not disclosed in the prior United States Application, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

_____

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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